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ABSTRACT

The effect of an attribution retraining program intended to teach 35 learning disabled (LD) junior high school students to attribute achievement outcomes to the internal factor of effort was examined in the study. The research was concerned with LD adolescents' perceptions of personal (internal) and environmental (external) causality as explanatory constructs in their academic success and failure. LD students were administered the Rosenberg Self Esteem Scale, the Intellectual Achievement Responsibility Scale, and the Task Attribution Questionnaire before and after attribution retraining which consisted of giving verbal attribution statements during the oral administration of a weekly spelling test. Findings were that LD adolescents did not differ significantly from nonLD adolescents in their responses to general self esteem and attribution questionnaires. Effort attribution training brought no significant increase in effort attributions for the experimental group of LD students. Effort attributions were high prior to the training and remained high after training, but no significantly higher scores were obtained. In addition, LD students reported that effort was a factor that explained success or failure in achievement tasks, but reported that factors other than effort explained their personal success or failure on the spelling task. Tables and charts with statistical data are included. (Author/SB)

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Emphasis on Adolescents and Young Adults

AN APPLICATION OF ATTRIBUTION THEORY TO DEVELOPING SELF-ESTEEM IN LEARNING DISABLED ADOLESCENTS

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The University of Kansas Institute for Research in Learning Disabilities is supported by a contract (#300-77-0494) with the Bureau of Education for the Handicapped, Department of Health, Education, and Welfare, U. S. Office of Education, through Title VI-G of Public Law 91-230. The University of Kansas Institute, a joint research effort involving the Department of Special Education and the Bureau of Child Research, has specified the learning disabled adolescent and young adult as the target population. The major responsibility of the Institute is to develop effective means of identifying learning disabled populations at the secondary level and to construct interventions that will have an effect upon school performance and life adjustment. Many areas of research have been designed to study the problems of LD adolescents and young adults in both school and non-school settings (e.g., employment, juvenile justice, military, etc.)

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Cooperating Agencies

Were it not for the cooperation of many agencies in the public and private sector, the research efforts of The University of Kansas Institute for Research in Learning Disabilities could not be conducted. The Institute has maintained an on-going dialogue with participating school districts and agencies to give focus to the research questions and issues that we address as an Institute. We see this dialogue as a means of reducing the gap between research and practice. This communication also allows us to design procedures that: (a) protect the LD adolescent or young adult, (b) disrupt the on-going program as little as possible, and (c) provide appropriate research data.

The majority of our research to this time has been conducted in public school settings in both Kansas and Missouri. School districts in Kansas which are participating in various studies include: United School District (USD) 384, Blue Valley; USD 500, Kansas City; USD 469, Lansing; USD 497, Lawrence; USD 453, Leavenworth; USD 233, Olathe; USD 305, Salina; USD 450, Shawnee Heights; USD 512, Shawnee Mission, USD 464, Tonganoxie; USD 202, Turner; and USD 501, Topeka. Studies are also being conducted in Center School District and the New School for Human Education, Kansas City, Missouri; the School District of St. Joseph, St. Joseph, Missouri; Delta County, Colorado School District; Montrose County, Colorado School District; Elkhart Community Schools, Elkhart, Indiana; and Beaverton School District, Beaverton, Oregon. Many Child Service Demonstration Centers throughout the country have also contributed to our efforts.

Agencies currently participating in research in the juvenile justice system are the Overland Park, Kansas Youth Diversion Project and the Douglas, Johnson, and Leavenworth County, Kansas Juvenile Courts. Other agencies have participated in out-of-school studies--Achievement Place and Penn House of Lawrence, Kansas, Kansas State Industrial Reformatory, Hutchinson, Kansas; the U.S. Military; and the Job Corps. Numerous employers in the public and private sector have also aided us with studies in employment.

While the agencies mentioned above allowed us to contact individuals and supported our efforts, the cooperation of those individuals--LD adolescents and young adults; parents; professionals in education, the criminal justice system, the business community, and the military--have provided the valuable data for our research. This information will assist us in our research endeavors that have the potential of yielding greatest payoff for interventions with the LD adolescent and young adult.

ABSTRACT

The effect of an attribution retraining program intended to teach LD adolescents to attribute achievement outcomes to the internal factor of effort was the focus of the present research. Effort attributions enable students to accept responsibility for their achievement outcomes in ways that enchance their self-esteem. This research was concerned with learning disabled adolescents' perceptions of personal (internal) and environmental (external) causality as explanatory constructs in their academic success and failure. The relationship between attributions, expectancy of success, and self-esteem was the focus of the research. Specifically, the research centered on the effect of effort attribution training on causal attributions and self-esteem. Attribution retraining consisted of giving verbal attribution statements to the treatment group of students during the oral administration of a weekly spelling test.

This study found that LD adolescents did not differ significantly from non-LD adolescents in their responses to general self-esteem and attribution questionnaires. Effort attribution training brought no significant increase in effort attributions for the experimental group of LD students. Effort attributions were high prior to the training and remained high after training, but no significantly higher scores were obtained.

For LD students data from the general attribution measures (IAR) and the task specific attribution measure (TAQ) were contradictory. LD students would report on the IAR that effort was a factor that explained success or failure in achievement tasks, but report that factors other than effort explained their personal success or failure on the spelling task.

AN APPLICATION OF ATTRIBUTION THEORY TO DEVELOPING SELF-ESTEEM IN LEARNING DISABLED ADOLESCENTS

Learning disabled (LD) students are described in the literature as poorly motivated (Deshler, 1978; Marsh, Gearheart, & Gearheart, 1978) and having low self-esteem (Bruininks, 1978; Ross, 1978) and an external locus of control (Hallahan, Gajar, Cohen, & Tarver, 1978). Lack of motivation, low self-concept, and an orientation which places responsibility for academic outcomes outside the student's control discourages the LD student from trying to accomplish academic tasks. To school personnel, the LD student frequently appears to be indifferent, passive, and unmotivated. The LD student, on the other hand, may not perceive personal effort as a means of acquiring academic skills and rewards from the teacher. So teacher and student find themselves in an environment where the teacher blames the LD student for lack of motivation while the LD student does not perceive effort as related to achievement outcomes.

The present research reports the effects of an attribution retraining program intended to teach LD adolescents to attribute achievement outcomes to the internal factor of effort rather than to a learning disability or to the external factors of luck or task difficulty. Effort attributions enable students to accept responsibility for their achievement outcomes in ways that enhance their self-esteem. Effort attributions for success bring a sense of pride and accomplishment; effort attributions for failure permit the student to maintain a positive self-image because failure is explained by lack of effort, something that can be changed, rather than lack of ability, something that cannot be changed.

Attribution theory is concerned with causal perceptions. "An attribution is the inference that an observer makes about the causes of behavior, either his own or another person's" (Bel-Tal, 1978). One does not observe the causes of behavior; they are constructed cognitively by the perceiver (Weiner, 1972). "Attribution theory concerns the process that the average individual uses in attempting to infer the causes of observed behavior" (deCharms & Shea, 1976). Attribution theory assumes that persons have the ability to construct the world of personal interaction in terms of causal relationships and that people are motivated to obtain a cognitive mastery of the causal structure of their environment.

Attribution theory has developed from the work of Fritz Heider (1958). Heider postulated that humans have the goal of constructing a predictable and controllable framework of life. The individual constructs a framework by connecting outcomes to either relatively unchanging dispositional conditions or to more changeable situational factors. These attributions serve the purpose of supporting the constancy of the individual's picture of the world.

Heider described outcomes as a function of "effective personal force" and "effective environmental force". The "effective personal force" (within-person factors) include a power factor (ability) and a motivational factor (trying). Heider conceptualized ability as a stable factor and effort as an unstable factor. The "effective environmental force" (within environmental factors) includes task difficulty and luck. Task difficulty is a stable environmental factor while luck is an unstable environmental factor. Figure 1

illustrates Heider's view of the factors which affect action outcomes.

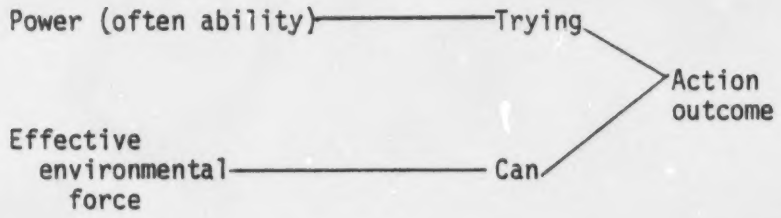

Figure 1. "Can" and "Trying" as eterminants of Action Outcomes

The relationship between "can" and "trying" is such that if either element were completely absent, no action outcome could occur. In other words, each is a necessary, but not sufficient, condition to produce an outcome. Heider suggested that neither ability without exertion or exertion without ability are able to overcome environmental obstacles (Weiner, 1972).

Weiner combined Julian Rotter's (1954) concept of locus of control and Fritz Heider's concept of stable and unstable factors into a two-dimensional grid. Heider's concepts of "can" (know-how) and "try" were translated by Weiner into the concepts of ability and effort. Figure 2 displays the relationship between the dimensions.

Stability	Internal	External
Fixed	Ability	Task Difficulty
Variable	Effort	Luck

Figure 2. Locus of Control (Taken from Weiner, Heckhausen, Meyer, & Cook, 1972)

The ability factor includes intelligence and knowledge as well as the personality and attitudes that affect what the individual can do. Ability is viewed as a stable, internal factor; task difficulty--a stable, internal factor. The unstable factors are effort (an internal factor) (an internal factor) and luck (an external factor). Effort is defined as the exertion expended by the individual to accomplish a task. Luck is defined as a transient environmental condition involving change and/or opportunity.

Causal Factors in Self-Attributions

Individuals differ in the causal attributions they use to explain their own success or failure and researchers have attempted to identify the factors which systematically explain differences in causal attributions. Research on the determinants of causal attributions show that several factors explain differences in causal attribtions. These factors include: locus of control, perceived control, expectancy of success or failure, motivation, self-esteem, and need achievement.

Locus of Control. Locus of control refers to how the individual views control over the reinforcers in his/her life (Rotter, 1966). Individuals with internal locus of control believe that their own actions primarily determine their outcomes. Individuals with an external locus of control usually believe that they have little control over what happens to them and see outside forces as responsible for outcomes. Locus of control theory suggests that persons with an internal locus of control will attribute success or failure to internal factors (ability and effort) while persons with an external locus of control will attribute success or failure to the factors of luck and task difficulty.

Research has shown that individuals with an internal locus of control have greater expectations of success (Crandall, Katkovsky, & Preston, 1962; Feather, 1967) and that they persist longer at a given task. (Altshuler & Kassinove, 1975; Crandall, Katkovsky, & Crandall, 1965; Feather, 1962). Feather explained that it will take more unsuccessful attempts at a task to reduce expectations in an individual that has a high expectation of success than it will for the individual who has a low expectation for success. This finding is particularly true for the individual with an internal locus of control. Internals relate success to effort or skill and failure to inadequacy.

Internals and externals process cognitions differently. Krovetz (1974) demonstrated that internals attribute success and failure to skill and externals attribute success to chance and failure to bad luck. Internals show an additional ability to realistically appraise control over a success situation. Internals do not attribute success totally to themselves in unexpected success situations, relying on ease of task and effort to explain the outcome. Lefcourt, Hogg, and Struthers (1975) also found that low confident internals were the most likely and high confident internals least likely to make external causal attributions, especially in the failure condition.

There are positive aspects that occur when an individual attributes outcomes to internal causes. Feather (1967) and Lanzetta and Hannah (1969) found that ascribing success to an internal cause produces a greater sense of pride than ascription

to an external cause. Harvey, Barnes, Sperry, and Harris (1974) found internal attributions enabled the individual to experience more control over task outcomes.

Perceived Control. The extent to which people feel they exercise control over their life is mediated by specific environmental events. Perception of control is, therefore, a function of how individuals interact with conditions in the environment. Perceptions of control also have an influence on a person's affective responses to an event and to academic achievement.

Wortman (1975) found that subjects perceive more control over events when they have foreknowledge of the possible results and actually play a part in determining those results. Liem (1975) found that subjects are more satisfied with classes when they have a choice than if they do not. Harvey and Harris (1975), in a similar study, found a positive correlation between the overall ratings of perceived choice and the overall ratings of expected feelings of internal control.

It has been pointed out that the more control individuals perceive in a certain situation, the more control they feel over the results and the more satisfied they are with the results (Harvey & Harris, 1975; Liem, 1975; Wortman, 1975). Fiedler suggested that students learn more in classes where they feel they have more control over their behavior regardless of whether they actually do exert more control. Koenigs, Fiedler, and deCharms (1977) found that pupils who were able to influence teachers had high academic achievement, i.e.,

the more flexible the classroom interaction, the higher the grades. Liem also found subjects favored unstructured classes more than structured ones.

Harvey and Harris differentiated between perceived choice or freedom and perceived control; the latter refers to the expectancy that individuals control their future behavior. These researchers found a positive relationship between the two entities; when people have high perceived choice, feelings of internal control are greater. If, therefore, one is encouraging a person to approach a task from an internal perspective, it would be important to allow that individual a high degree of choice in decisions relevant to the task (Harvey, 1976). Similarily, perceived freedom has been found to positively relate to personal responsibility (Harvey, Harris, & Barnes, 1975; Kruglanski & Cohen, 1974; Wortman, 1975).

An extreme example of lack of control over one's environment was reported by Dweck (1975) and Dweck and Repucci (1973). "Helpless children" tend to perceive an independence between their behavior and task outcomes. The important variable seems not to be the occurrence of the aversive event but the perception of one's control over it. "Helpless" subjects significantly attributed less causation for their outcomes to internal variables than the non-helpless group. They also scored significantly lower than persistent subjects in attributions to effort.

Expectancy of Success

Causal attributions are also affected by expectancy of success

and failure. Feather and Simon (1971b) found that expected success and failure is attributed to ability and unexpected success or failure was attributed to luck. Gilmor and Minton (1974) found that subjects who begin a task with a high degree of confidence attribute failure externally and success internally. Reverse trends were true with low confident subjects. Thus, the highest attribution to stable/internal causes occurred when outcomes were consistent with expectations and the highest attribution to variable/external causes when a task outcome was inconsistent with expectations. Attributions are affected by the expectancy of task outcomes (success and failure) and tend to act as a confirmation of one's self image.

The feedback pattern of success and failure affects expectancies and attributions. Consistent feedback encourages attributions to the stable factor of ability while inconsistent feedback results in attributions being made to the unstable factor of luck (Nicholls, 1975). Feedback patterns can change expectations and will determine how rapidly extinction of expectations will occur (Weiner, 1972). According to Weiner, the stability of the reinforcer is crucial. If one believes success or failure is due to an unstable factor such as luck or effort, expectations of future success will remain high and the individual will persist. Attributions for failure to unstable factors (effort and luck) encourage high future expectations for success and enhance persistence.

Motivation. Intrinsic and extrinsic motivation to accomplish a task also affect attributions. Persons are intrinsically motivated

if they perform an activity for its own sake and extrinsically motivated if the activity is performed as a means to an end, such as rewards or punishments controlled by someone else. Persons view themselves as predominately intrinsically or extrinsically motivated and these attributions have varying consequences. Lepper, Greene, and Nisbett (1978) and Ross (1976) found that children who were encouraged to be externally motivated through the promise of a reward, displayed less subsequent interest in the activity when the reward was removed then those who never received a reward. External attributions were related to decreased persistence by moving the responsibility and control for actions away from the internal dimension. Lepper et al concluded "Motivation by those around him is more likely to need ever increasing amounts of fuel from outside to fire the system. At a certain point the need outgrows the supply."

Self-Esteem. Self-esteem differences result in varied reactions to success and failure. Fitch (1970) hypothesized that persons are motivated to perceive events in ways that are either enhancing to their self-image or consistent with their chronic low self-esteem. Fitch found that low self-esteem individuals attributed failure more to internal causes than those with high self-esteem. For success experiences, no differences were noted in attributing to internal or external causes.

In a study by Maracek and Mettee (1972), subjects who were certain of their low self-esteem did not improve in self-esteem following an exaggerated success experience in which they were encouraged to attribute internally. Low self-esteem/uncertain subjects

and high self-esteem subjects showed improvement regardless of responsibility for success. These results indicated that internal attributions for success may have a counter-productive effect on persons with chronic stabilized low self-esteem. With these individuals, it may be necessary to allow them to continue attributing success to external dimensions such as luck until success becomes less dissonant with their self-image.

This preference of low self-esteem individuals for information that is consistent with their general low self-concept is seen in research by Silverman (1964). Low self-esteem persons were more responsive to attributions which devaluated the self than those which enhanced it.

In a review of literature relating attribution to self-esteem for persons exhibiting dysfunctional behavior, Storms and McCaul (1976) noted that attribution training increased self-esteem. Studies by Nisbett and Schacter (1966) and Ross, Robin, and Zimbardo (1969) indicated an increase in self-esteem through attributing causes of dysfunction behavior to non-emotional sources. Miller, Brichman, and Bolen (1975) also show that increasing self-esteem through changing attributions is possible. They compared persuasion and attribution techniques and found that self-esteem scores improved most significantly for the attribution groups. The latter group encouraged attribution to the internal dimensions of ability and effort. It was concluded that attributing the causes for success and failure to the internal/unstable dimension of effort allowed the person to feel more in control of her/his life, to have higher expectations for success, and to increase self-esteem.

Need Achievement. Persons who differ in achievement needs also differ in outcome attribution. Kukla (1972) found that high achievers attributed outcomes to ability and effort, intermediate achievers to ability and luck, and low achievers only to ability. High achievers solved more problems when they were told that effort as well as ability determined the outcome of the task.

Internal causal attributions were also used extensively by high achievers in experiments by Weiner and Kukla (1970). Individuals high in achievement motivation tended to attribute success in achievement motivation. Individuals high in achievement motivation also took more responsibility for failure, attributing it to effort. Weiner and Kukla stated that "it is possible that attributing failure to motivation, rather than to a lack of ability, facilitates subsequent achievement strivings." They summarized their results by stating that individuals high in achievement motivation are more likely to approach achievement-related activities, find these activities to be rewarding, attribute success to themselves, choose intermediate tasks, and persist longer given failure due to effort attribution.

Attribution Retraining

It has been hypothesized by attribution theorists (Bar-Tal, 1978; deCharms & Shea, 1976; Dweck, 1975; Weiner, 1972; Weiner, et al., 1972) that the way people view an event helps to determine how they will react to it. If one feels failure is a result of lack of ability or external factors, motivation to try will be decreased. Conversely, if one feels failure is a result of lack of effort one will be more likely to try. Dweck hypothesized that if children are

taught to take responsibility for failure and attribute it to insufficient effort, their persistence would increase. Dweck and Repucci (1973) noted that their findings also have implications for the development of attribution retraining. They implied that when individuals develop a greater sense of responsibility and an increased attribution to effort for success and failure, they will have achieved more "adaptive" achievement behaviors. Bar-Tal stated that attributions of success to effort result in greater satisfaction within an individual as well as greater rewards from others. Similarily, attributing causes of failure to lack of effort will be associated with low satisfaction and will encourage greater trying in subsequent attempts. Attribution retraining attempts to attribute causes more frequently to the unstable element over which the person has control, that of effort.

Several training programs have emphasized the importance of effort attribution training in achievement settings (Chapin & Dyck, 1976; deCharms, 1972; Dweck, 1975; Maracek & Mettee, 1972; Weiner et al., 1972). This research showed that effort training is best accomplished in an individualized program where the external factors of chance and task difficulty do not contribute significantly to success or failure Bar-Tal, 1978).

Dweck studied elementary school children who were labeled as "helpless", characterized by giving up on a task in a failure situation. Students were assigned to an attribution retraining group and a success-only group. A control group of persistent children was used as a comparison. Prior to training, all subjects showed a decrease in performance following failure. Results showed that only

the students in the Attribution Retraining Treatment showed "consistent and substantial" decreases in their maladaptive reaction to failure. All of the attribution retraining subjects increased in their choice of the effort alternative from pretraining to posttraining, indicating a change in recognition of effort as a significant cause for failure.

Similarily, Chapin and Dyck (1976) trained children experiencing reading difficulties. N length (the number of successive failures prior to success) were combined wtih the presence or absence of attribution retraining to form four groups with a fifth group receiving success-only training. Their results indicate that persistence in a child's reading behavior is increased by a combination of N length and attribution retraining.

Heckhausen (1975) found that when teachers changed their causal attribution statements about poor performance to "you could do better if you still would expend more effort" failure was attributed more to a lack of effort than a lack of ability. Level of aspiration was more rarely lowered in the face of failure and anxiety was also decreased. Using procedures of imitation learning and internal speech, borrowed from Meichenbaum and Goodman (1971), Heckhausen (1975) developed another training program. Subjects modeled the experimenter by setting a standard, planning actions, calculating effort output, monitoring performance, evaluating performance outcome, weighing causal attribution and administrating self-reward. Among the positive outcomes was failure attributed less to lack of ability and more to that of effort. Finally, deCharms (1972, 1976) demonstrated that personal causation training not only increased

origin scores but positively affected standardized achievement scores and increased attendance.

Summary

The relevance of attribution theory to analyzing achievement-related behavior has been demonstrated by many researchers (Beckman, 1970; Dweck, 1975; Dweck & Repucci, 1973; Heckhausen, 1975; Lanzetta & Hannah, 1969; Leventhal & Michaels, 1971, Kukla, 1972; Rest, Nierenberg, Weiner & Heckhausen, 1973; Weiner et al., 1972). The appropriateness of the model for school age subjects has been shown in numerous attribution studies (Bailer, 1961; Chapin & Dyck, 1976; deCharms, 1972; Dweck, 1975; Dweck & Repucci, 1973; Nicholls, 1975; Meichenbaum & Goodman, 1971; Miller et al., 1975; Weiner et al., 1972). Through this research we see that causal determinants for success and failure, focus of control and stability, can be used in studying perceived causes of academic success and failure.

Methodology

Purpose of the Study

The present research was concerned with learning disabled adolescents' perceptions of personal (internal) and environmental (external) causality as explanatory constructs in their academic success and failure. The relationship between attributions, expectancy of success, and self esteem was the focus of the research. Specifically, the research centered on the effect of effort attribution training on causal attributions and self-esteem.

Subjects

Subjects were 35 junior high school students (10 female and 25 male) identified as learning disabled by school district guidelines and assigned to a resource room setting for part of the school day.

The students attended three junior high schools in a moderate-sized midwestern city. The schools served a heterogeneous student body and were selected by district administrative personnel from the district's 9 junior high schools as representative of the district's racial, cultural, and socio-economic characteristics.

A total of 50 LD students were served by the three junior high schools. The parents of thirty-five students gave the informed consent required for participation in the training program. Students were randomly assigned within each junior high school to either an experimental or a control group. Nineteen students (4 female and 15 male) were assigned to the experimental group and sixteen students (6 female and 10 male) to the control group.

In addition, a sample of 99 non-LD students (57 female and 42 male) served as a control group and completed the self-esteem and causal attribution instruments. The sample included 37 seventh graders, 34 eighth graders, and 28 ninth graders. Intact classes were selected by individual building principals to participate in testing.

Instruments

Three instruments were administered pre- and post-treatment to the LD sample. These instruments included the Rosenberg Self-Esteem Scale, The Intellectual Achievement Responsibility Scale (IAR), and the Task Attribution Questionnaire (TAQ) (developed specifically for the study). The Rosenberg Self-Esteem Scale and the Intellectual Achievement Responsibility Scales were administered once to the non-LD sample.

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a 10-item

scale developed through application of Guttman-scaling techniques. Statements are written in first person singular and measure self-respect and perceived competence. High self-esteem is defined by agreement with self-affirming statements and disagreement with self-derogatory statements.

The Intellectual Achievement Responsibility Questionnaire (Crandall, Katkowsky, & Crandall, 1965) consists of 34 forced-choice items. The respondent is presented with a positive or negative achievement situation and given two attributions between which to choose. One is an internal attribution wherein the subject assumes responsibility for the reported outcomes. The other is an external attribution where the outcome is seen as the responsibility of the situation or some other person. The I-score gives the number of achievement situations for which the person takes responsibility.

The Task Attribution Questionnaire (TAQ) is a four-item questionnaire yielding 4 scores: an attribution score; an achievement expectancy score before feedback; an achievement expectancy score after feedback; and an actual achievement score. The TAQ used spelling words matched to the students' actual spelling ability. Scores were collected for easy, moderately difficult, and difficult spelling words. Resource room teachers developed individual spelling lists of easy, moderately difficult, and difficult words for each LD student participant for use in this phase of the assessment process. Five words in each category of difficulty were chosen at random for use in the pre- and post-testing.

Students were told that they would be asked to spell five easy words and that most junior high students could spell most of the

words correctly. Students were then asked to estimate the number of words that they would be able to spell correctly. The words were dictated to the students who wrote them on a separate sheet of paper. The spelling words were corrected and feedback was given to the students. The students were then given a card and asked which statement explained their performance on the task.

Students spelling a specified number of words correctly received the following question:

1. When I spell words on the spelling test correctly, it is because
   a. I am good at spelling.
   b. I was lucky.
   c. The words were easy for me to spell.
   d. I tried very hard to spell them correctly.

For students spelling less than the specified number of words correctly the following question was asked . . .

1. When I do not spell words on the spelling test correctly, it is because
   a. I am not good at spelling.
   b. I was unlucky (I wasn't asked any words that I could spell.).
   c. The spelling words were too hard.
   d. I did not try hard enough to spell the words correctly.

After feedback was provided and attribution data were collected, students were again asked to estimate the number of words that they could spell correctly if they were given a second set of spelling words of similar difficulty.

The same procedure was followed for the moderately difficult

and the difficult spelling words. The order in which the words were administered was balanced across the experimental and control groups. Equal proportions of students in each group received each of the following orders of presentation: difficult, moderately difficult, easy; easy, moderately difficult, difficult; and moderately difficult, difficult, easy.

Procedures

Testing and treatment extended over a six-week period. The first week was devoted to pre-testing. LD students were administered the Rosenberg Self-Esteem Scale and the Intellectual Achievement Responsibility Scale in the resource room by a member of the research team who read the test orally to the students. The TAQ was administered individually to the LD students by members of the research team. Pre-testing was accomplished in two consecutive days at each of the junior high schools.

Administration of the Rosenberg Scale and the IAR to non-LD students was accomplished during the pre-testing week. These scales were administered in the student's regular classroom with test administration conducted by the research staff.

Attribution retraining was conducted during the second through the fifth weeks of the research period by the LD resource room teacher. Attribution retraining consisted of giving verbal attribution statements to the treatment group of students during the oral administration of a weekly spelling test.

Post-testing was carried out during the sixth week. Post-testing procedures were identical to the pre-testing procedures.

Attribution Retraining Program

Each LD teacher prepared an individual list of 40 moderately difficult spelling words for each LD student participant. A moderately difficult spelling word was defined as a commonly used word which the student was unable to spell correctly, but that the student could learn to spell correctly with moderate study. Each week the teacher selected ten words from the student's spelling list and gave the list of the words to the student with directions to study the words for an oral spelling test later in the week. The student was always told the exact time and date at which the spelling test was to be given. At the time of the spelling test, the teacher would ask the student to spell each word orally as it was pronounced. When the student spelled the word correctly the teacher said: "You spelled that word correctly, you tried hard to learn to spell that word." When the student spelled the word incorrectly, he/she was told: "If you spent more time studying, you could learn to spell that word correctly."

Teacher Training Component

To acquaint the teachers participating in the attribution retraining project with its purposes, a workshop was held on a Saturday prior to pre-testing. Two of the three project teachers were able to attend; four teachers not associated with the research were also included in the workshop.

The first workshop activity exemplified the belief that the participating teachers needed to experience the effects of attribution patterns on academic achievement and the related dimensions of persistence, expectancy of success, and motivation. The task, a

modification of the psycholinguistic task used by Krovetz (1974) required the teachers to indicate which of three Javanese words had the same meaning as an English word. Trial one, for example, consisted of the English word "savage" followed by three Javanese words, "nglemir", "pitepung", and "luntah". The teachers were to choose the Javanese word which had the same meaning as the English word. Each participant was given a booklet consisting of a page of directions and three tests. Included in each test were ten trials in the previously mentioned synonym format. The direction page explained the procedure for recording an estimate of correct responses before beginning each test.

Directions to three persons indicated that research had shown that performance on the task was primarily due to effort. The fourth participant received the instructions that some people have a natural linguistic ability for this kind of task and that it would influence the outcome. The fifth person was told that due to the difficulty of the task, success or failure would be primarily due to luck. Participants received feedback according to a pre-set individual plan. Three persons received moderate feedback (scores 4, 6, and 5), one participant's scores were consistently increased (3, 5, 7), and one individual's scores decreased. Because of the influence that it might have on the next experimental activity, a discussion of this task was postponed.

The second workshop activity used the Raven Progressive Matrices as stimulus material for attributions. According to the traditional Raven procedures, the teachers were asked to choose one out of six diagrams which best completed the relationship involved in the part-

icular design. After a time limit of one minute, the correct answer was given and the participants were asked to complete one of the following sentences, depending on their outcome: "My failure was primarily due to..." or "My success was primarily due to...". A total of eight matrices of varying degrees of difficulty was used.

After the completion of the Raven exercise, the members of the group were encouraged to share several of their attribution statements and their thoughts about the task. Through this sharing experience it was noted that individuals attribute the causes for their successes and failures differently. The decrease in motivation when the difficulty of the task was too high was also emphasized. The leaders of the group used this discussion to stress the importance of insuring that the spelling words used in the retraining process with students be of moderate difficulty for each student.

Following the second activity, a short description of attribution theory was given by one of the workshop leaders using Weiner's (1974, 1976) two-dimensional classification grid of attributions as a visual aid. The retraining project's primary goal of encouraging the internal/unstable attribution of effort was emphasized. Continuing with the explanation of attribution theory, Fritz Heider's (1958) diagram was presented, which displays the relationship of various personal and environmental forces to an outcome. Related to the diagram the leader stressed the significance of effort for learning disabled children; it may serve as a necessary balancing force to counteract their lack of "power" (ability and knowledge) and

possible detrimental "environmental forces".

At this point, the focus of the group returned to the first activity and the participants were debriefed. They were informed of the varied directions, the false feedback, and the timing of their test completions. Through the use of a chart, each individual's attribution directions, expected scores, false feedback, and persistence scores (defined as number of minutes spent working at a test) were compared. Mean persistence and expected scores were calculated for each group with the results as shown in Figure 3.

Attribution directions	Mean Persistence scores	Mean Expected-scores
Effort	71 seconds	3.7 words
Ability	38 seconds	3.3 words
Luck	38 seconds	2.7 words

Figure 3. Mean persistence and expectancy scores as a function of attribution directions.

A discussion of the participants' motivations, expectancies for success, frustrations concerning the task, and feedback pattern followed. The project's goals of promoting positive expectations and increasing persistence through effort attribution training were emphasized. The workshop was concluded with a role-playing demonstration by two of the group leaders concerning the effort attribution training procedure that the project teachers would be using.

Data Analysis

Data were analyzed using a pre-, post-, control group design. Analysis of covariance was used to test for differences in post-test

scores on the Rosenberg and the IAR. Chi Square analysis was used to test for differences in TAQ responses.

Results

General Self-Esteem Scores

The analysis of covariance for the Rosenberg Self-Esteem scores yielded non-significant results, ($F = .964$, $df = 1.32$). The group means for the experimental and control LD groups were not significantly different prior to or following treatment. Table 1 shows the pre- and post-test means.

Table 1

Pre-test, Post-test, and Adjusted Post-test Means for Rosenberg Self-Esteem Scale

	Experimental	Control
Pre-test	27.37	29.44
Post-test	27.11	29.62
Adjusted Post-test	27.74	28.87

Comparison of the Rosenberg mean scores for the total sample of LD students at pre-testing with the mean score for the non-LD students yielded non-significant results, ($t = .06$, $df = 132$). The LD students could not be distinguished from the sample of non-LD students by their self-esteem scores. Table 2 reports the means for the groups of LD and non-LD students.

Table 2

Mean Rosenberg Self-Esteem Score for the Sample on LD and non-LD Students

	$\bar{X}$	S	n
Non-LD	29.08	16.09	99
LD*	28.31	21.81	35

* pre-test for the combined group: $t = .06$, $df = 132$

General Attribution Scores

The IAR was scored for two variables: internal attributions and effort attributions. The analysis of covariance for the LD sample yielded non-significant results for the total internal attributions ($F = .70$, $df = 1.32$). Experimental and control LD students made equivalent numbers of internal and effort attributions. Table 3 shows the means for internal attribution for the experimental and control LD groups. Table 4 presents these data for effort attributions only.

Table 3

Mean IAR Internal Attribution Scores for the Experimental and Control LD Groups

	Pre	Post	Adjusted Post
Experimental	22.42	21.58	22.46
Control	24.43	24.44	23.39

Table 4

Mean IAR Effort Attribution Scores for the Experimental and Control LD Groups

	Pre	Post	Adjusted Post
Experimental	15.05	14.32	15.06
Control	17.00	16.44	15.55

LD students as a group did not differ from non-LD students in the number of internal and effort attributions they gave on the IAR. The t-tests yielded non-significant results for the internal (t = 1.36, df = 132) and effort attribution (t = .529, df = 132) comparisons. Table 5 reports the means for these variables for the LD students and the comparison group of non-LD students.

Table 5

Mean IAR Internal and Effort Attribution Scores for LD and non-LD Students

Internal Attributions			
	$\bar{X}$	s	n
non-LD	24.03	4.23	99
LD	23.43	4.24	35

Effort Attributions			
	$\bar{X}$	s	n
non-LD	16.58	3.31	99
LD	15.94	3.52	35

Spelling Task Attributions

Analysis of attribution data from the TAQ indicated that the effort attribution training program did not produce significant changes in effort attributions for the experimental group. Chi square analysis of the changes in effort attributions from pre- to post-testing across the three levels of task difficulty yielded non-significant results. Table 6 shows the results of these analyses. The data in Table 6 give the number of students who gave an effort attribution on the pre-test and a non-effort attribution on the post-test (negative change category); and a non-effort attribution of both the pre- and post-test(no change category); and a non-effort attribution on the pre-test and an effort attribution on the post-test (positive change category). While more shifts from non-effort to effort attributions were made by the experimental group than by the control group, the number was not large enough to attribute to treatment effects.

Figure 1 depicts the percentage of students in the experimental and control groups who gave effort attributions for the pre- and post-testing, (See Table 7 for a listing of these percentages). The pattern of effort attributions was similar for both the experimental and control groups.

Figures 2, 3, and 4 depict the post-test attribution patterns of the experimental and control groups. These data suggest that LD students as a group attributed success on easy tasks to the ease of the task; success on moderately difficult tasks to effort; and failure on difficult tasks to either lack of ability or difficulty of the task.

Achievement data collected as part of the TAQ administration provided a check on the relative difficulty of the spelling words selected by the LD resource room teachers for use in the training and in the testing. Table 8 reports the mean number of correctly spelled words at pre- and post-testing for the experimental and control groups. Recall that the five spelling words administered to students were tailored to the students' ability. Data in Table 8 show that more easy spelling words were spelled correctly than were "moderately difficult" words. While for LD students as a group, the description of the task difficulty and the students' actual performance on the task were congruent, there were 8 administrations (8 out of 70) for which the task directions and the students' actual performance were discrepant. Table 9 summarizes these data. The

Table 6

Results of the Chi Square Re-analysis of Pre-Post Changes in Effort Attributions for the Experimental and Control Groups

Easy Words

	Negative Change	No Change	Positive Change
Experimental	2	12	5
Control	3	12	1

$X^2 = 2.55$, df = 2

Moderately Difficult Words

	Negative Change	No Change	Positive Change
Experimental	2	13	4
Control	2	13	1

$X^2 = 1.57$, df = 2

Difficult Words

	Negative Change	No Change	Positive Change
Experimental	2	14	3
Control	2	11	3

$X^2 = 0.16$, df = 2

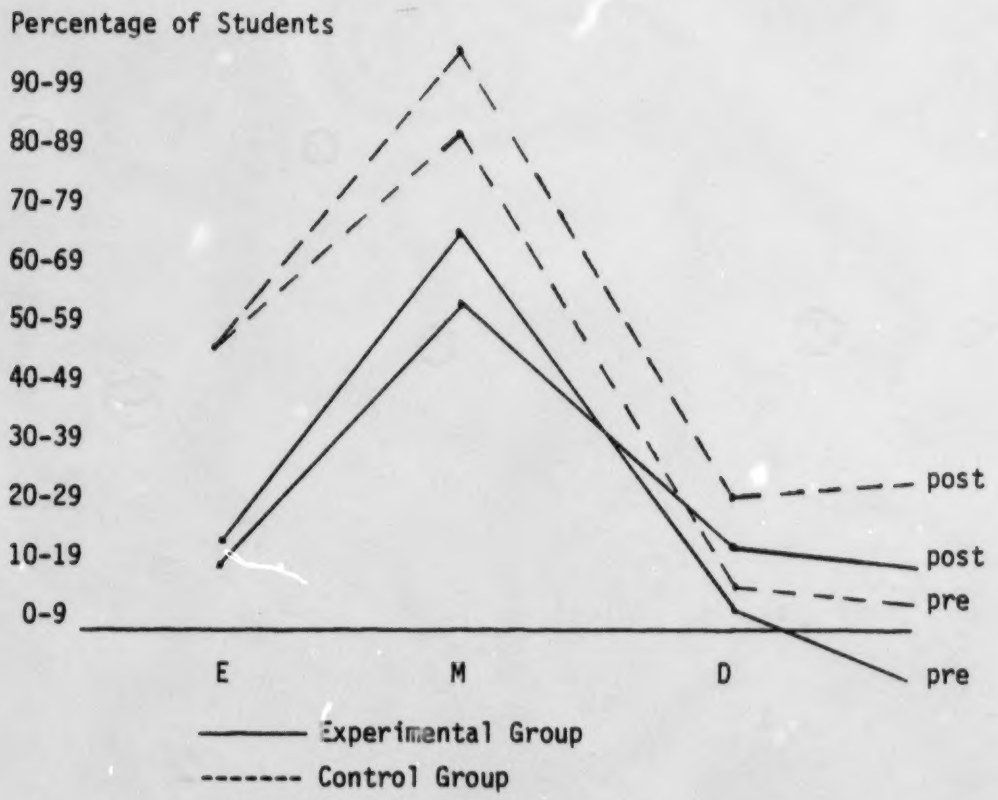

Figure 1: Effort Attribution Patterns for the Experimental and Control Group on Pre- and Post-testing for Easy (E), Moderate (M), and Difficult (D) Words

Table 7

Percentage of Students in the Experimental and Control Groups Giving Effort Attributions on the TAQ

	Pre-testing		
	Easy	Moderate	Difficult
Experimental	26%	63%	0.0%
Control	44%	81%	0.0%
	Post-testing		
	Easy	Moderate	Difficult
Experimental	21%	52%	11%
Control	44%	94%	18%

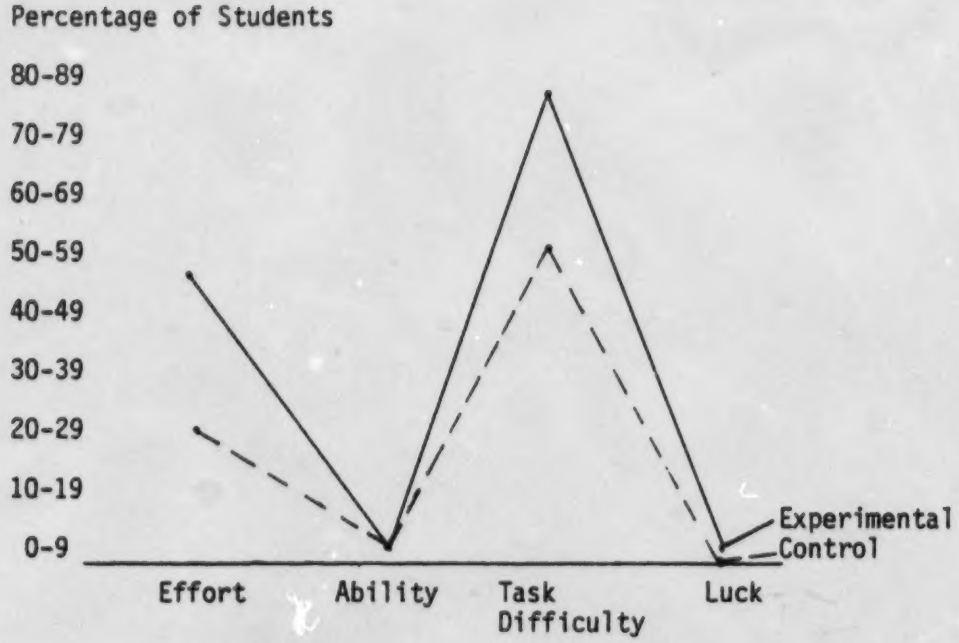

Figure 2: Post-test Attribution Patterns for the Experimental and Control Groups on Easy Words

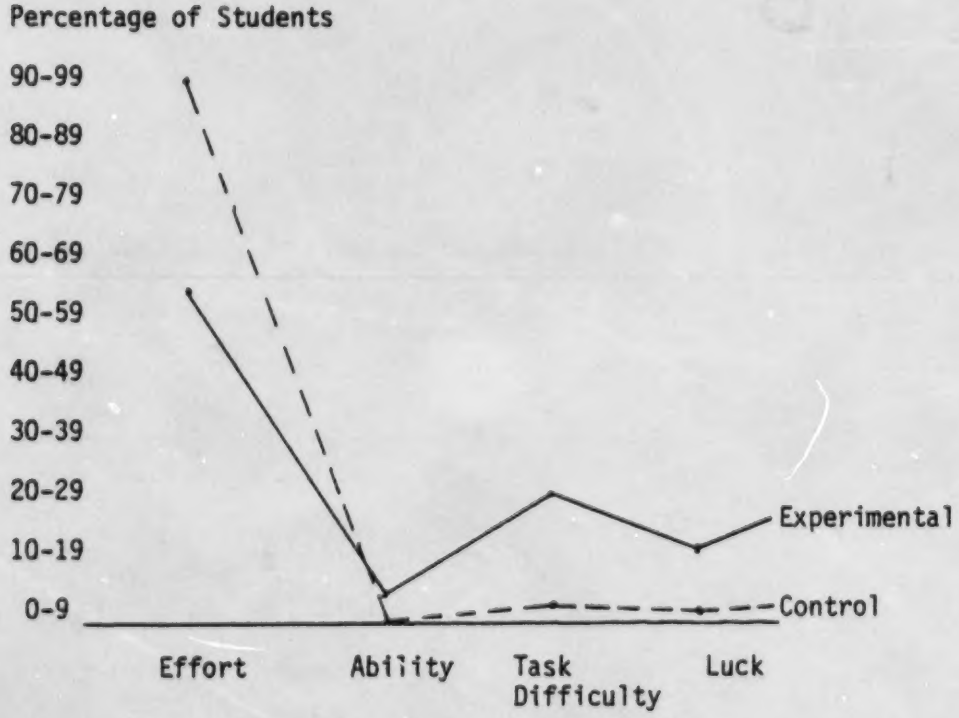

Figure 3: Post-test Attribution Patterns for the Experimental and Control Groups on Moderately Difficult Words

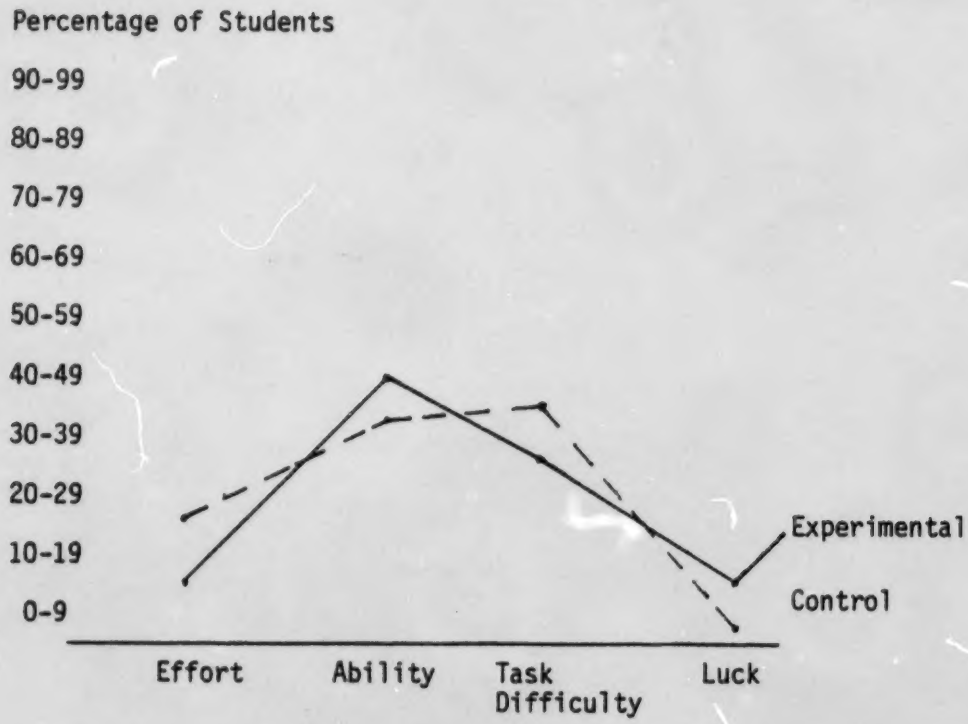

Figure 4: Post-test Attribution Patterns for the Experimental and Control Groups on Difficult Words

Table 8

Mean Number of Correctly Spelled Words on TAQ for the Experimental and Control Groups

		Pre		Post	
		$\bar{X}$	s	$\bar{X}$	s
Control	E	4.4	.88	4.0	1.03
	M	1.69	1.2	2.38	1.36
	D	.44	.73	.81	.91
Experimental	E	4.21	1.23	4.21	.92
	M	2.36	1.30	3.26	1.15
	D	.78	1.08	.95	1.27

data relative to the difficulty of the spelling words suggest that the spelling words used during training as well as TAQ assessment were of the correctly specified difficulty for the LD students.

Post hoc Comparisons

Failure to find a significant treatment effect led the researchers to investigate characteristics of the LD student sample which might have mitigated against the treatment being effective. Recall that effort attributions were hypothesized to increase expectancy for success. While the treatment did not produce a significant increase in effort attributions, a large enough number of students gave effort attributions at post-testing to permit this hypothesis to be considered for the total LD sample.

The TAQ asked students to predict the number of words they could spell correctly at each difficulty level before and after feedback. The difference between the students' actual performance and their predicted score after feedback gives a measure of expectancy of success. Rotter (1954) has used such a measure as an indicator of level of aspiration and deCharms (1976) used a similar measure to assess risk-taking. Inspection of the expectancy of success score for moderately difficult words indicated that LD students in both the experimental and control groups predicted future scores discrepant from their actual scores. Table 10 presents this data. The fact that LD students made effort attributions did not enable accurate predictions about their expectancy of future success.

Table 9

Number of Students for whom Directions and Performance were Discrepant

	Pre	Post
Experimental	3	3
Control*	4	4

*2 students in the control group had discrepant scores in the pre - and post-testing.

Table 10

Post-test Expectancy Scores after Effort Attributions for Moderately Difficult Words

Group	Accurate	Over-Estimate	Under-Estimate
Experimental	2	3	5
Control	6	5	4

$X^2 = 1.65$, df = 2, not significant

Finding that the expectancy of success data did not support the hypothesized relationship between effort attribution and prediction of future success, the expectancy of success scores across all word difficulty levels were categorized as accurate, consistently inaccurate (an over- or under-estimate), or random. Table 11 presents this data. Table 11 shows that 17% (6 students) of the total LD sample made predictions consistent with their actual performance and that 45% (16 students) of the sample made predictions classified as random.

Table 11

Classification of Post-test Expectancy Scores as Accurate or Inaccurate

	Accurate	Inaccurate: Consistently Over-estimate	Inaccurate: Under-estimate	Random
Experimental	2	2	4	11
Control	4	3	4	5
Total	6	5	8	16

Finding disagreement between effort attributions and expectancy of success scores led researchers to the post hoc hypothesis that there was no significant relationship between students' effort responses to the IAR and their effort responses to the TAQ. To test this hypothesis, biserial correlations between effort responses to TAQ and individual IAR items permitting effort attributions were computed for the post-test data. Table 12 reports these results. Data in Table 12 show that LD students' responses to the general attribution measure (IAR) were not significantly related to effort attributions on the TAQ.

Table 12

Biserial Coefficient between Individual Post-test IAR Item Responses and TAQ Effort Attributions for Easy, Moderately Difficult and Difficult Words

IAR Item	Effort Attributions		
	Easy	Moderately Difficult	Difficult
2	.16	.47*	.20
3	-.13	-.13	-.17
4	.10	-.10	.30
5	.08	.10	-.06
9	-.16	-.25	-.10
11	.04	-.04	.36*

IAR Item	Effort Attributions		
	Easy	Moderately Difficult	Difficult
12	-.06	.19	.22
14	.39*	.26	.17
15	-.13	-.26	0.00
16	.12	.16	-.10
19	.16	.30	.10
23	.11	-.11	.00

*$p < .01$

Discussion

The literature describes learning disabled students as having poor self-esteem (Bruininks, 1978; Ross 1976), an external locus of control (Gardner, Warren, & Gardner, 1977, Hallahan, Gajar, Cohen, & Tarver, 1978, Marsh, Gearheart, & Gearheart, 1978), poor motivation (Deshler, 1978; Rosenthal, 1973); and as either unwilling or unable because of the debilitating effects of prolonged failure to expend effort in school (Haring, 1974). Learning disabilities teachers are described as spending much of their time trying to motivate students and encouraging them to put forth the effort necessary to experience success (Haring, 1974). It was with this view of the characteristics of the LD student and the role of the LD teacher that the present research was undertaken. However, the self-esteem and general attribution data indicated that the LD students in this study resembled their non-LD peers more than the LD student depicted in the literature.

The experimental group of LD adolescents in this sample did not significantly increase their effort attributions after participation in an effort attribution training program. Failure to find significant increase in effort attributions is probably explained by the similarity of the LD and non-LD samples in effort attributions, i.e., for the experimental group to have become more internal would have required that they give significantly more internal responses than the typical student of their age in their school setting.

These findings raise several interesting questions. The most obvious one is whether the LD students were "true" LD students. The problems in defining and identifying learning disabilities and the heterogeneity of the population of identified LD students have been discussed by a number of writers in the field (Johnson & Myklebust, 1967; Torgeson, 1978; Wallace & McLoughlin, 1975). However, the LD students in the present study had not been recently identified, but had been assigned to resource rooms for most of their school years.

An equally possible explanation for the positive self-esteem scores is that the LD students had learned both in the resource room environment and in their out-of-school life that they were persons of worth. Like adults, the LD students may have disassociated their sense of worth from the academic arena and choose to compete in other areas. As one LD student remarked: "I am not very good in school, but I am the best worker they have ever had at Charley's." Thomas (1979) wrote that, "some children have been observed who, despite academic failure, retain a positive sense of competence through successful experiences in other areas. It is possible that attributions about their ability become less stable as a result of such success and this helps to innoculate them against the effects of school failure." It is also possible that the LD teachers who serve these students have been instrumental in the development of the students' positive self-images within the LD resource room.

Finally, the large proportion of internal responses (68%) given by both LD and non-LD students may be explained by the fact that effort attributions increase with age and, according to Weiner and Peter (1973), may be more highly valued than the outcome itself especially for children in the 10 to 12 year range. Thus, it is possible that the LD students had learned to give the socially desirable answers to the self-esteem and attribution questionnaires. However, it should be noted that while Hisama's (1976) results parallel the results of this study, research by Hallahan et al. (1978), Gardner et al. (1977), and Marsh et al. (1978) are contradictory. These researchers found LD adolescents of junior and senior high school age to be significantly more external than their non-LD peers.

Some support for the argument that the LD students gave internal responses because they were the socially desirable responses in afforded by the LD students' attributions on the TAQ. When LD students were asked to give the causes of their success or failure in an academic task, external attributions were greater than internal attributions. Furthermore, under a failure condition, attributions to lack of ability were common. Thus, the picture of a person with an internal locus of control and a positive self-image was not sustained by the TAQ data. Futhermore, LD students' responses to the IAR items permitting effort attributions were not significantly re-

lated to their effort attributions on the TAQ. LD students would report on the IAR that effort was a factor that explained success or failure in achievement tasks in general, but report that factors other than effort explained their personal success or failure on the specific spelling task.

The expectancy of success data from the TAQ also raises questions about the validity of the self-esteem and general effort attribution scores. LD students attributed failure on the difficult words to task difficulty and low ability, the stable factors. Persons with high self-esteem typically attribute failure to unstable factors (bad luck or insufficient effort). Weiner (1972) has shown that if the individual attributes success or failure to an unstable factor, expectations of success will remain high. LD students' expectancy of scores were inconsistent with their effort attributions. It was not uncommon for the LD student to state that effort explained success and then predict a lower score on a subsequent task of equal difficulty.

The expectancy of success score used in this study has been conceptualized by other researchers as a measure of realistic goal setting. Under such a conceptualization, the LD students in this study were not realistic goal setters. Covington and Omlich (1979) have discussed the role that unrealistic goal setting plays in protecting self-esteem. The unrealistic expectancy of success scores noted on the TAQ suggest that LD students may feel the need to protect the self-esteem by setting unrealistic goals. The members of the TAQ administration group were all impressed by the LD students' inability or unwillingness to use data about task difficulty and prior performance to estimate future preformance on similar tasks.

While the present research suggests that LD students are unable to set realistic goals, there is virtually no information available about the relationships between attributions and expectations for this group of students (Thomas, 1979), and additional research is needed.

The researchers assumed that the general attribution patterns characteristic of adults applied to adolescents in general and LD adolescents in particular. These assumptions allowed us to predict that LD adolescents faced with an academic task would most likely attribute failure to stable causes, usually internal, and success to external causes, usually unstable. However, our sample results did not agree with this pattern of attributions and two additional points need to be considered with respect to these results. Either LD students have compartmentalized their academic experiences in school to the point that if, and only if, they have found success in non-academic areas in school, they remain more positive about their future and develop a stable concept of ability in these areas. Or, perhaps, they are helpless in the psychological sense of not being able to believe they can exercise control in achievement areas.

If LD adolescents are "helpless", they may engage in none of the logical processes of prediction that permit one to relate what has just happened to what is likely to happen in the future. When the future is not predictable, outcomes occur at random and who can explain them, much less take responsibility for them. For LD adolescents, failure may be expected, but there may be no relationship in the student's mind between failure and the causes of failure. Thus LD students may not view their behavior as the cause of achievement outcomes.

Summary

This study found that LD adolescents did not differ significantly from non-LD adolescents in their responses to general self-esteem and attribution questionnaires. However, the LD sample was more heterogeneous than the non-LD sample in their responses to these measures. The picture of the LD students as lacking in self-esteem and external in their assignment of responsibility for achievement outcomes found in the literature was not true of the present sample of LD students.

Effort attribution training brought no significant increase in effort attributions for the experimental group of LD students. Effort attributions were high prior to the training and remained high, but not significantly higher, after training.

Data from the general attribution measure (IAR) and the task specific attribution (TAQ) were contradictory. The internal locus of control suggested by the IAR responses was not confirmed by the TAQ responses suggesting that LD students' general self-esteem attributions did not transfer to academic tasks. Further evidence of the LD students' lack of academic self-confidence was afforded by their unrealistic expectancy of success scores. The need to study LD students' goal setting strategies as a means of understanding effort attributions was stressed.

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